

2007 Ozone Season Summary Report



Purpose

This ozone season summary provides an overview of ozone levels from the 2007 season and trends over the last eight years. Currently, the Indiana Department of Environmental Management (IDEM) monitors ozone levels under the 8-hour ozone standard that was established in July 1997 by the U.S. Environmental Protection Agency. The 8-hour standard of 85 parts per billion (ppb) averaged over an eight-hour period is a stricter standard for ozone than the previous 1-hour standard and is more protective of public health. An area violates the standard when the *design value*, which is the three-year average of the fourth highest value for each ozone season, is equal to or greater than 85 ppb.

Indiana monitors ozone in areas where levels are expected to be higher because of population density, motor vehicle and industrial activities. IDEM and local air agencies collect and report data from 41 ozone monitors across Indiana. During the 2007 ozone season, no ozone monitors were added, discontinued or relocated.

Ozone Designations and Redesignations

On April 15, 2004, the U.S. EPA designated areas under the new 8-hour ozone health standard and classified them as attainment, nonattainment or unclassifiable based on data collected from 2001-2003. In its initial announcement, 23 counties and one township in Indiana were identified as being in violation of the new 8-hour standard. However, data collected during the 2004 ozone season indicated that at the close of the season, Delaware, Greene, Jackson, Vigo, Vanderburgh and Warrick counties had attained the new 8-hour standard. These counties were formally redesignated to attainment by the U.S. EPA in 2005 and reclassified as attainment with an approved maintenance plan.

During the 2005 ozone season, 31 of Indiana's 41 ozone monitors measured a 4th high value below the standard and 40 out of 41 monitors recorded a three-year design value that met the standard. Only the Hamilton County monitor exceeded the standard. Additionally, eight more counties met the standard at the end of the 2005 ozone season. In 2006, IDEM submitted redesignation requests and maintenance plans for Allen, Clark, Elkhart, Floyd, LaPorte, Lake, Porter and St. Joseph counties to U.S. EPA. In 2007, six of the eight counties were redesignated to attainment by the U.S. EPA and reclassified to maintenance. IDEM's redesignation request for Lake and Porter counties is still pending approval due to unexpected elevated values in the area during the 2007 ozone season.

At the close of the 2006 ozone season, all 41 ozone monitors recorded a 4th high value below the standard and all 41 monitors had three-year design values that met the standard. The Central Indiana area was the last multi-county area with monitoring data to meet the standard. In March 2007, IDEM submitted a Redesignation Petition and Maintenance Plan for Central Indiana, which includes the counties of Boone, Hamilton, Hancock, Hendricks, Johnson, Madison, Marion, Morgan, and Shelby. Central Indiana was formally redesignated to attainment by the U.S. EPA in October 2007 and reclassified to attainment with a maintenance plan.

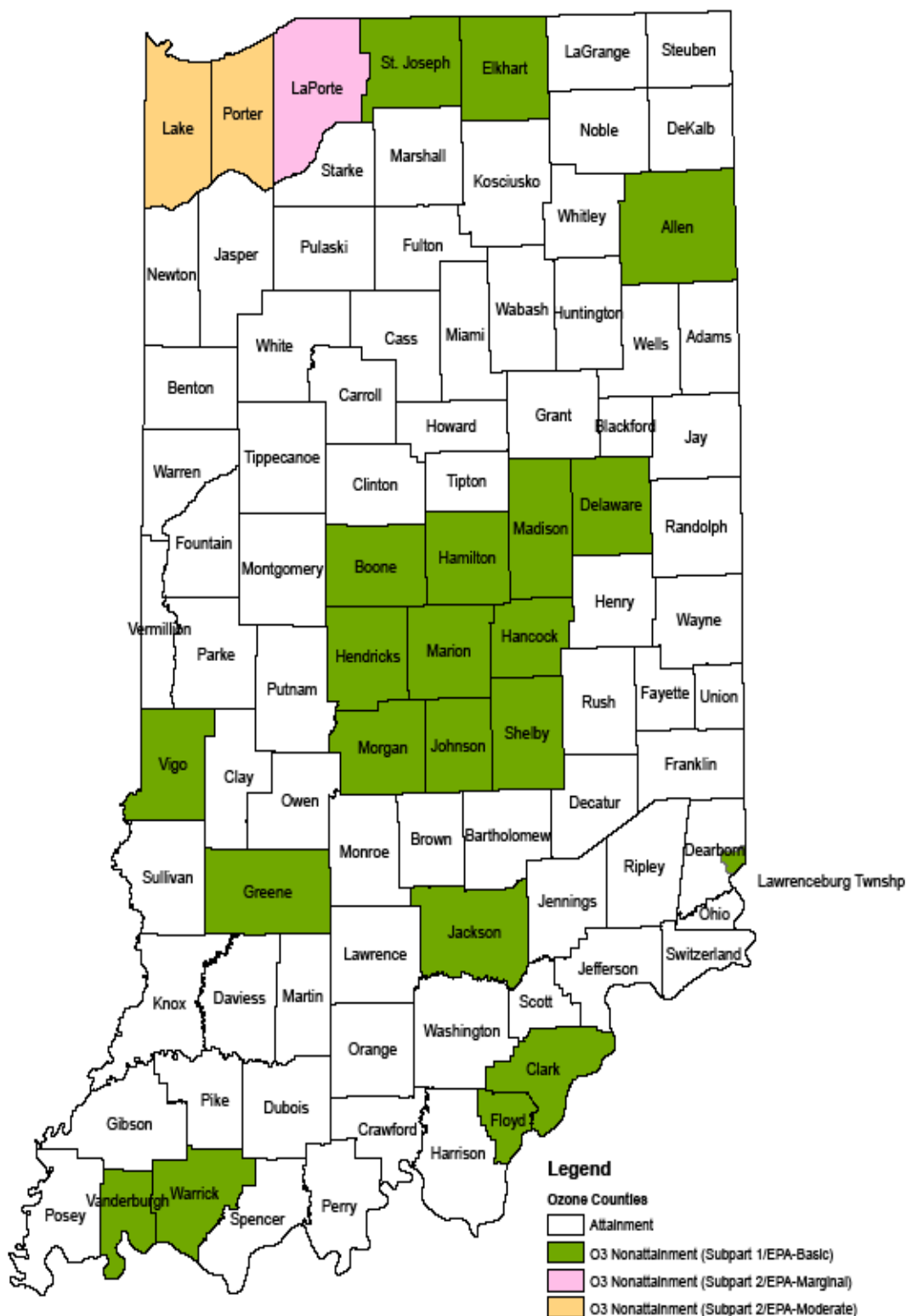
Lawrenceburg Township, located in Dearborn County, is the only area still designated as nonattainment for the 8-hour ozone standard. Lawrenceburg Township is part of the Cincinnati nonattainment area and therefore will not be able to be redesignated to attainment until the Cincinnati area is redesignated. At the end of the 2007 ozone season, Cincinnati had one monitor that marginally exceeded the standard of 85 ppb. There are no ozone monitors in Dearborn County. In 2007, an attainment demonstration for Lawrenceburg Township was submitted to the U.S. EPA, indicating the area will attain the standard by 2009.

The U.S. EPA proposed a new standard in June 2007 based on a range of .070 ppb to .075 ppb. However, comments were accepted on a range from .060 ppb to .080 ppb. The U.S. EPA is expected to issue a final new standard in mid-2008. Additional information is included in a fact sheet located at <http://www.IN.gov/idem/programs/air/8hourstandard/docs/OzoneStandardRevisions.doc>.

For more information regarding ozone or the State's redesignation petitions and maintenance plans, visit www.IN.gov/idem/programs/air/ or contact Pat Daniel of the Office of Air Quality at (800) 451-6027 or (317) 233-0429.

2004 8-Hour Ozone Designations

The map below shows the nonattainment designations that U.S. EPA made in April 2004. Twenty-three full counties and one partial county, Lawrenceburg Township in Dearborn County, were designated as nonattainment for the new 8-hour ozone standard. That means those areas had a three-year (2001-2003) design value for ozone which exceeded 85 parts per billion.

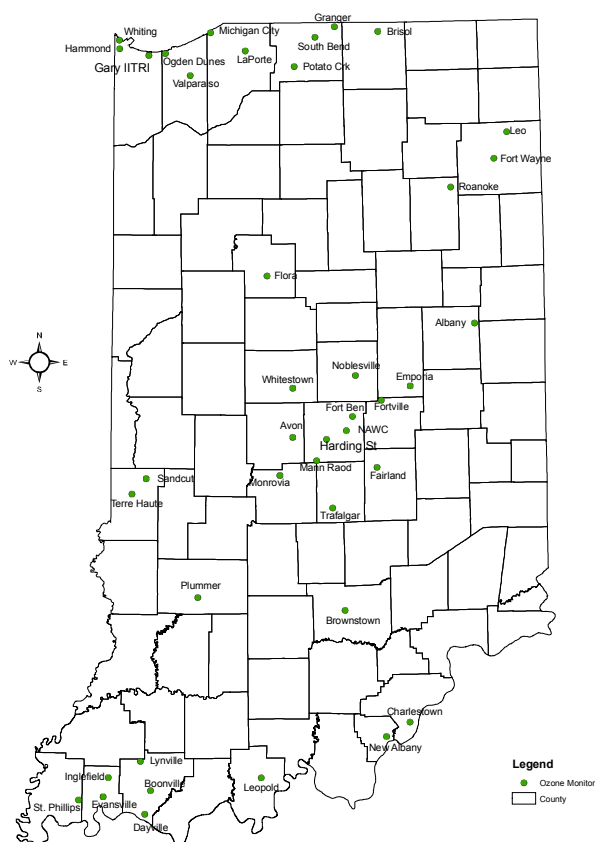


The map below shows the designation status of the counties in Indiana for the year 2007. Central Indiana was redesignated to attainment with a maintenance plan on October 19, 2007. Lawrenceburg Township in Dearborn County is part of the Cincinnati nonattainment area and will not be eligible for redesignation until the Cincinnati area becomes eligible. Lake and Porter counties remain in nonattainment.

Legend

- Attainment
- Nonattainment (Subpart 2/EPA Moderate)
- Attainment w/ Maintenance Plan
- Nonattainment (Subpart 1/EPA Basic)

OZONE MONITORS



Ozone Monitoring

U.S. EPA provides guidelines for the placement of ambient air quality monitors. Ozone monitors are placed based on the population density and manufacturing levels in an area since ozone levels are expected to be higher in those areas. In 2007, there were 41 ozone monitors located throughout the state from which IDEM and local air agencies collected data.

Ozone levels are monitored 24 hours per day and rolling 8-hour averages are calculated. The highest 8-hour average is what is reported for the day.

A monitor's design value is calculated at the end of the ozone season using the fourth highest value from the current year and the preceding two years to get a three-year average. This is the design value that U.S. EPA uses to determine if an area is in attainment for ozone.

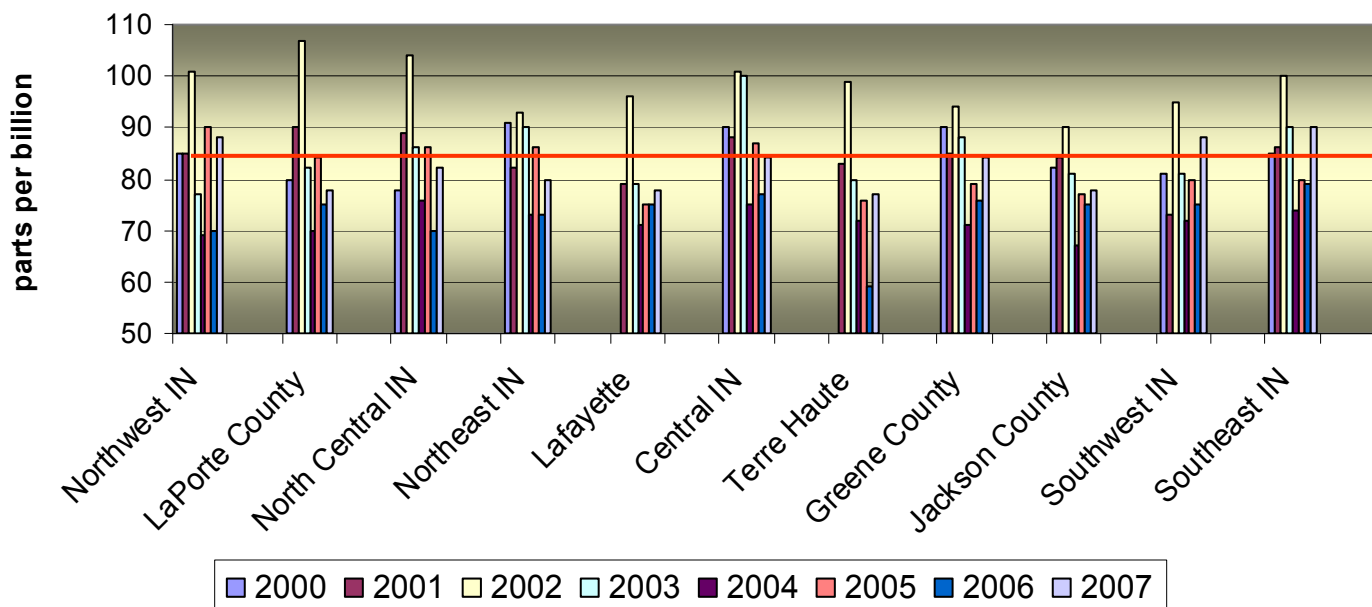
For example, the 2005-2007 design value shown on the table below is the average of the 4th high values for 2005, 2006, and 2007. Design values have been calculated for each monitor in the state.

At the close of the 2007 ozone season, five ozone monitors across Indiana recorded a 4th high value equal to or above the standard and one monitor had a three-year design value that exceeded the standard. Two monitors in areas with a maintenance plan had an exceedance of the standard. No monitors in areas with a maintenance plan had a violation of the design value in 2007.

2005-2007 Fourth High Ozone Values and 2005-2007 Design Values

County	Site	2005 4th High	2006 4th High	2007 4th High	2005- 2007 Design Value	County	Site	2005 4th High	2006 4th High	2007 4th High	2005- 2007 Design Value
Allen	Leo	86	73	77	78	Marion	Mann Rd.	76	74	80	76
Allen	Ft. Wayne	76	71	80	75	Marion	Ft. Harrison	80	76	83	79
Boone	Whitestown	82	80	83	81	Marion	Harding St.	81	76	76	77
Carroll	Flora	75	75	78	75	Marion	Naval Warfare	80	72	80	77
Clark	Charlestown	80	79	90	83	Morgan	Monrovia	78	77	84	79
Delaware	Albany	81	72	79	77	Perry	Leopold	86	79	80	81
Elkhart	Bristol	86	67	82	78	Porter	Odgen Dunes	90	70	84	81
Floyd	New Albany	80	76	82	79	Porter	Valparaiso	78	71	80	76
Greene	Plummer	79	76	84	79	Posey	St. Phillips	77	58	80	71
Hamilton	Noblesville	87	77	84	82	St. Joseph	Potato Creek	78	70	75	74
Hancock	Fortville	80	75	81	78	St. Joseph	Granger	86	70	82	79
Hendricks	Avon	78	73	79	76	St. Joseph	South Bend	84	64	67	71
Huntington	Roanoke	78	72	78	76	Shelby	Fairland	80	73	82	78
Jackson	Brownstown	77	75	78	76	Vanderburgh	Evansville	80	75	85	80
Johnson	Trafalgar	77	78	80	78	Vanderburgh	Inglefield	56	81	88	75
Lake	Gary IITRI	89	61	85	82	Vigo	Terre Haute	64	59	77	67
Lake	Whiting	88	81	88	85	Vigo	Sandcut	76	72	73	73
Lake	Hammond	87	75	77	79	Warrick	Boonville	80	78	83	80
LaPorte	Michigan City	84	75	73	77	Warrick	Lynville	76	70	80	75
LaPorte	LaPorte	89	69	78	78	Warrick	Dayville	77	78	76	77
Madison	Emporia	78	73	78	76	Red numbers are equal to or greater than 85 ppb.					

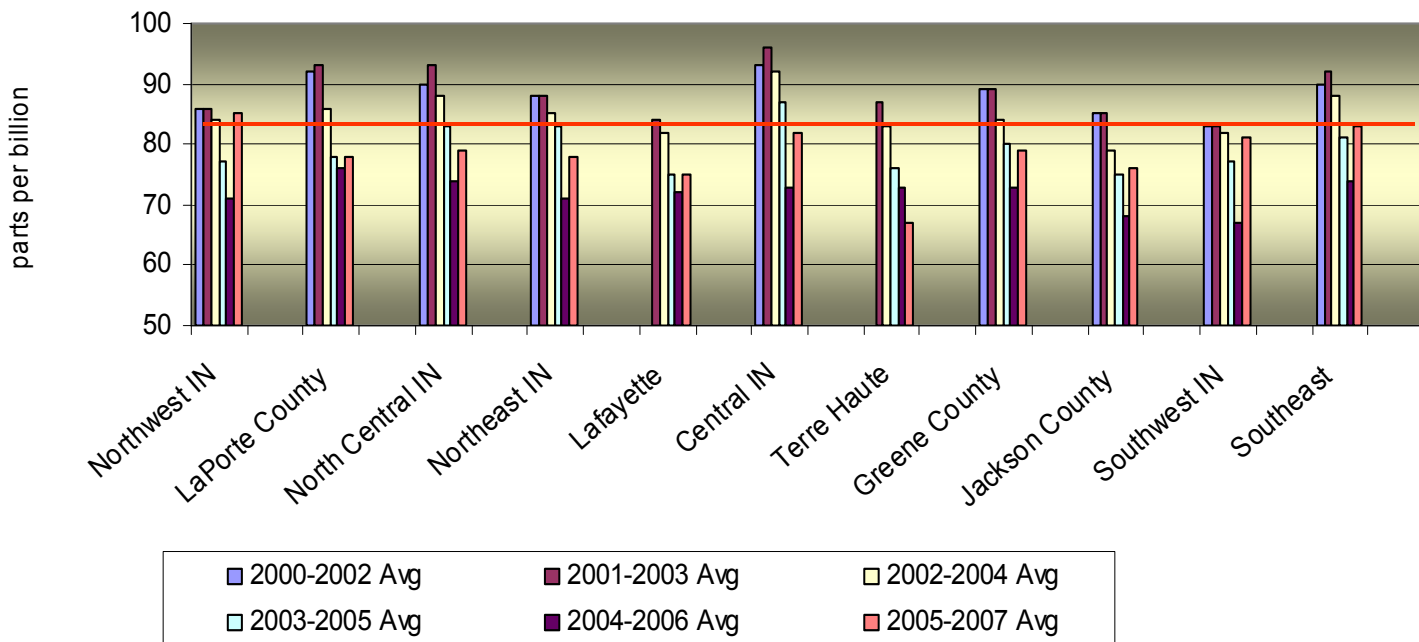
4th Highest Ozone Values by Region (2000-2007)



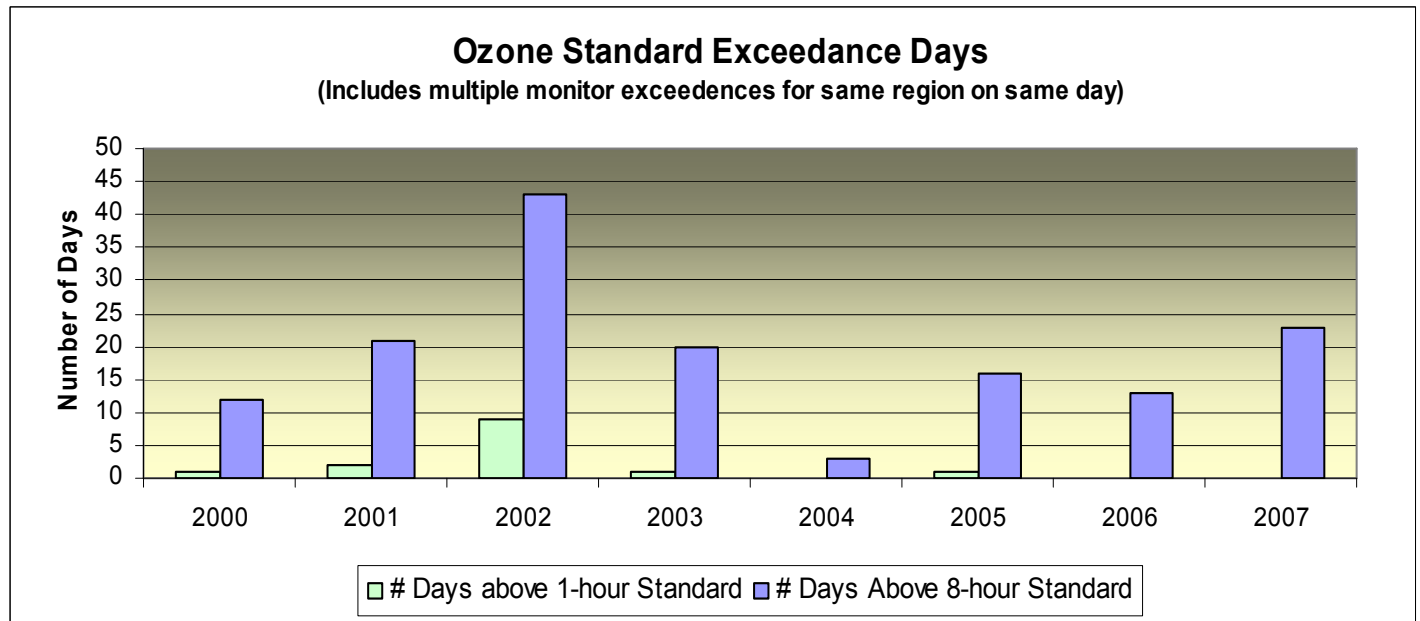
An Exceedance versus a Violation of the Standard

An exceedance of the standard occurs when an 8-hour average value is equal to or greater than 85 parts per billion. A violation of the standard occurs when the 3-year average of the fourth highest value for each ozone season is equal to or greater than 85 parts per billion. A monitor can exceed the standard without being in violation.

3-Year Ozone Design Value by Region (2000-2007)



The 1-Hour Ozone Standard was revoked by U.S. EPA on June 15, 2005. However, for the sake of information, the 1-hour standard is still included in this graph. There were no exceedances of the 1-hour standard in 2007.



Total Days by Monitor of 8-Hour Ozone Exceedances 2000-2007

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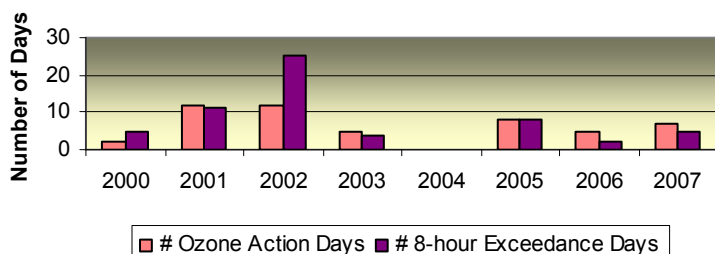
Number of Ozone Action Days 2000-2007

	2000	2001	2002	2003	2004	2005	2006	2007
Northwest Indiana	2	12	12	5	0	8	5	7
North Central Indiana	3	10	15	9	0	7	4	2
Northeast Indiana	4	6	14	9	0	5	4	2
Central Indiana	4	7	14	8	0	9	3	13
West Central Indiana	2	0	0	0	0	6	2	7
Southwest Indiana	3	4	16	4	0	8	9	21
Southeast Indiana	5	7	14	4	1	8	8	25

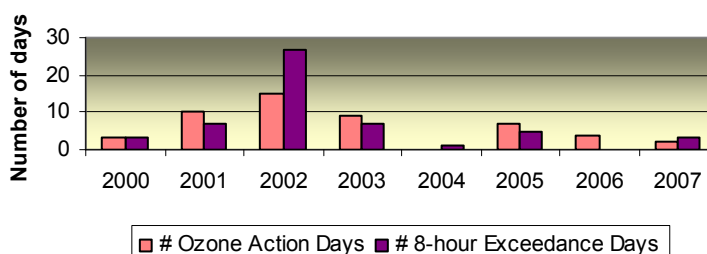
Number of 8-Hour Exceedance Days 2000-2007

	2000	2001	2002	2003	2004	2005	2006	2007
Northwest Indiana	5	11	25	4	0	8	2	5
North Central Indiana	3	7	27	7	1	5	0	3
Northeast Indiana	4	2	14	3	0	8	0	1
Central Indiana	5	10	26	11	1	5	2	6
West Central Indiana	1	2	10	2	0	1	0	2
Southwest Indiana	5	1	20	1	0	4	2	12
Southeast Indiana	4	4	18	4	0	3	3	9

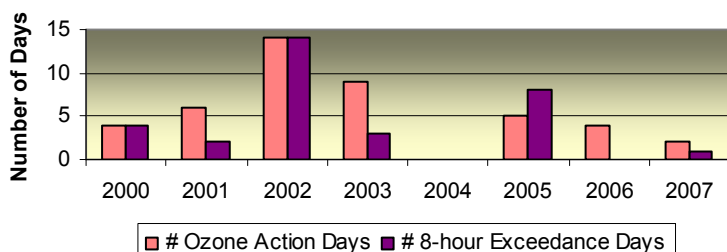
Northwest Indiana
Ozone Action Days vs 8-Hour Exceedance Days



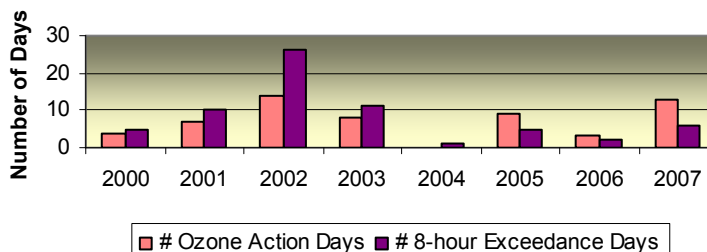
North Central Indiana
Ozone Action Days vs 8-Hour Exceedance Days



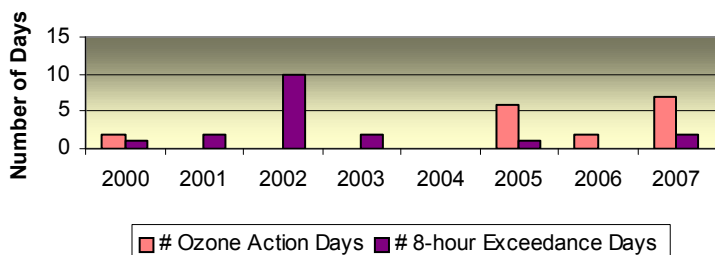
Northeast Indiana
Ozone Action Days vs 8-Hour Exceedance Days



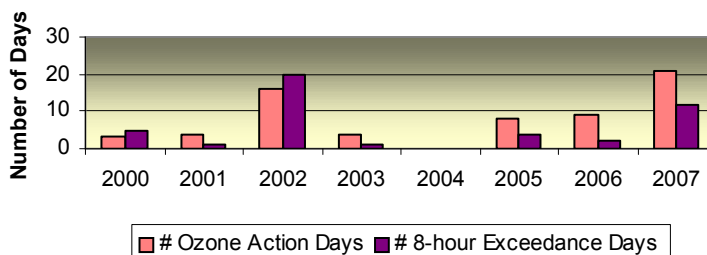
Central Indiana
Ozone Action Days vs 8-Hour Exceedance Days



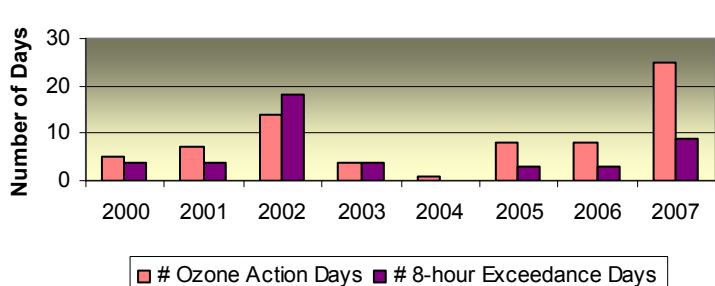
West Central Indiana
Ozone Action Days vs 8-Hour Exceedance Days



Southwest Indiana
Ozone Action Days vs 8-Hour Exceedance Days



Southeast Indiana
Ozone Action Days vs 8-Hour Exceedance Days



Ozone Monitors by Area of the State

Area	Counties	
Northwest	Lake	LaPorte
	Porter	
North Central	Elkhart	St. Joseph
Northeast	Allen	Huntington
Central	Boone	Johnson
	Delaware	Madison
	Hamilton	Marion
	Hancock	Morgan
	Hendricks	Shelby
West Central	Carroll	Vigo
Southwest	Greene	Vanderburgh
	Perry	Warrick
	Posey	
Southeast	Clark	Jackson
	Floyd	

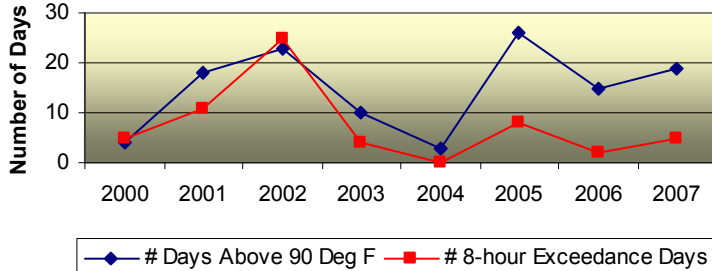
Number of 90 Degree Days 2000-2007

	2000	2001	2002	2003	2004	2005	2006	2007
Northwest Indiana	4	18	23	10	3	26	15	19
North Central Indiana	4	15	23	8	1	22	13	18
Northeast Indiana	2	8	23	3	1	24	10	29
Central Indiana	5	11	36	6	0	21	10	35
West Central Indiana	5	11	36	6	0	58	42	28
Southwest Indiana	22	30	56	23	9	46	32	58
Southeast Indiana	14	21	40	15	9	50	31	42

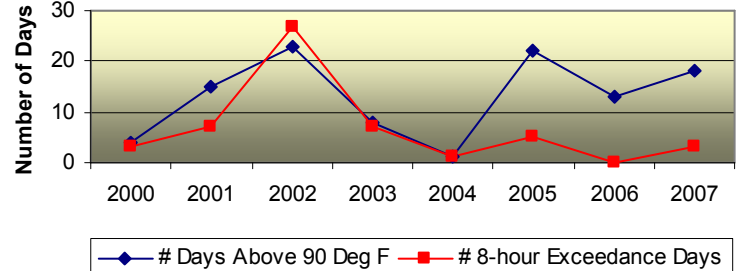
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West Central Indiana	1	2	10	2	0	1	0	2
Southwest Indiana	5	1	20	1	0	4	2	12
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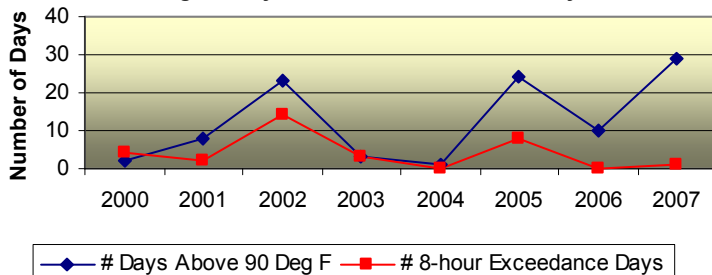
Northwest Indiana 90 Degree Days vs 8-Hour Exceedance Days



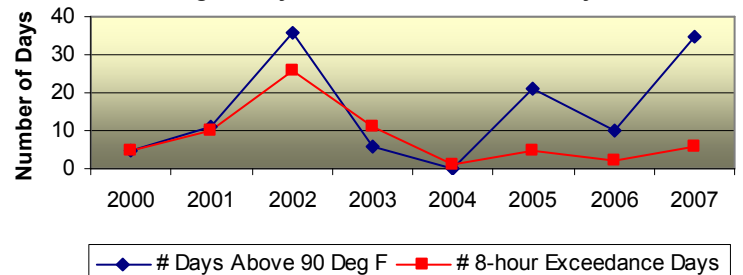
North Central Indiana 90 Degree Days vs 8-Hour Exceedance Days



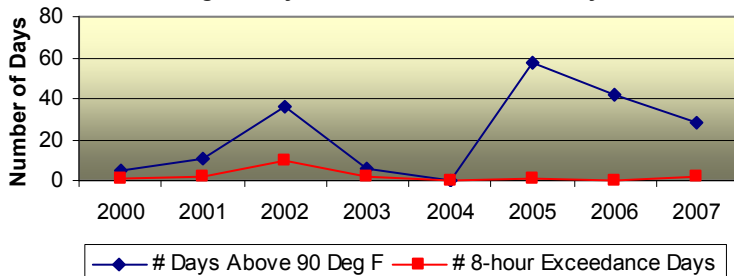
Northeast Indiana 90 Degree Days vs 8-Hour Exceedance Days



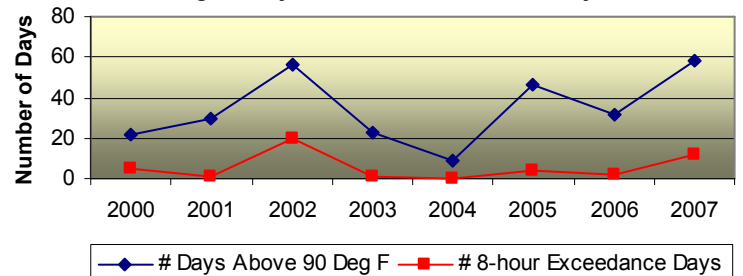
Central Indiana 90 Degree Days vs 8-Hour Exceedance Days



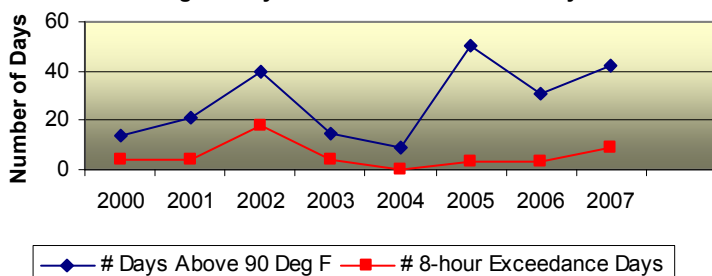
West Central Indiana 90 Degree Days vs 8-Hour Exceedance Days



Southwest Indiana 90 Degree Days vs 8-Hour Exceedance Days



Southeast Indiana 90 Degree Days vs 8-Hour Exceedance Days



Ozone Monitors by Area of the State

Area	Counties	
Northwest	Lake Porter	LaPorte
North Central	Elkhart	St. Joseph
Northeast	Allen	Huntington
Central	Boone Delaware Hamilton Hancock Hendricks	Johnson Madison Marion Morgan Shelby
West Central	Carroll	Vigo
Southwest	Greene Perry Posey	Vanderburgh Warrick
Southeast	Clark Floyd	Jackson

Maintenance Plan Trigger Evaluation

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